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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/666,382	09/20/2000	Xiao-Dong Sun	RD-27,624	6126

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EXAMINER

SODERQUIST, ARLEN

ART UNIT	PAPER NUMBER
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1743

DATE MAILED: 06/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action**

Application No.

09/666,382

Applicant(s)

SUN, XIAO-DONG

Examiner

Arlen Soderquist

Art Unit

1743

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 30 May 2003 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

**PERIOD FOR REPLY** [check either a) or b)]

- a) ☐ The period for reply expires \_\_\_\_\_ months from the mailing date of the final rejection.
- b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on \_\_\_\_\_. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☐ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
- (b) ☐ they raise the issue of new matter (see Note below);
- (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
- (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_.

3. ☒ Applicant's reply has overcome the following rejection(s): the rejection of the claims over 35 U. S. C. 112 first paragraph.
4. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☐ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: \_\_\_\_\_.

Claim(s) objected to: \_\_\_\_\_.

Claim(s) rejected: 1,2,4-6,9,10,13-20,23-30,33 and 34.

Claim(s) withdrawn from consideration: \_\_\_\_\_.

8. ☐ The proposed drawing correction filed on \_\_\_\_\_ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_.
10. ☐ Other: \_\_\_\_\_

ARLEN SODERQUIST  
PRIMARY EXAMINER

Continuation of 5. does NOT place the application in condition for allowance because: of the reasons of record and the following comments. It is noted that claim 11 was canceled in the listing of claims without any request to cancel. Thus examiner is treating claim 11 as having been canceled by this amendment.

Relative to the definition of "linear dynamic range" page 6, line 9 of the instant specification is talking about the verticle displacement of the syringes. If one looks at lines 15-20 of page 6, it is clear that the instant invention uses a stepping motor to control the volume of solution. Thus the instant invention uses discrete volume steps to make the differnet volumes that are dispensed. As such it appears that applicant is not capable of dispensing volumes of any amount in the claimed range, but is limited to the volumes that can be produced by the discrete steps of the stepping motor. More importantly this is the same method that Stahli uses to dispense the volumes taught therein and "linear dynamic range" does not define over what is taught by the combination of references.

Relative to the combination of references, the primary Xiang reference is substantially similar to the instantly claimed apparatus and method in that it teaches combinatorial preparation of luminescent materials for screening by forming mixtures of precursors that are subsequently processed to form materials that are screened for their luminescent properties. The major difference between Xiang and the instantly claimed device and method is the use of a positive displacement dispenser (syringe pump dispenser) to dispense the liquids used in forming the combinatorial mixtures. Thus the question becomes would one of ordinary skill in the art find motivation to replace the dispensers of Xiang with the required positive displacement dispensers. In answering this question, the analogous art clearly is not liomited to dispensers used to dispense liquids, solutions or suspensions of precursors used to make the luminescent materials as applicant appears to be arguing.

In this respect the Schultz reference clearly teaches combinatorial synthesis and screening of a variety of materials for a variety of properties that includes luminescent properties. The Schultz reference makes materials that are screened for a variety of properties showing that the intended use of the mixture made through the dispensing process has little if any relevance to the dispensing process and the dispenser used. The material are formed by forming mixtures of precursors that are dispensed to a substrate for subsequent processing. In the Schultz reference as in the Xiang reference the dispenser that is explained in the greatest detail is the inkjet type of dispenser. In addition to this Schultz teaches that commercially available micropipetting apparatus can be adapted to dispense drop volumes of 5 nanoliters or less from a capillary. This is a clear recognition and teachinhg by one of skill in the art that commercially available micropipetting apparatus CAN BE ADAPTED TO DISPENSE volumes small enough to form volumes within the claimed range in the combinatorial synthesis process. These teachings of Schultz show that one of ordinary skill in the art would have known the possibility of using other types of commercially available dispensers. This further shows that one of ordinaru skill in the art has an expectation of succesfully modifying or adapting commercial micropipetting dispensers to dispense the nanoliter volumes required by the claims. In the case of the Salomaa reference a micropipetting device is taught which dispenses liquids to form mixtures having one or more components that vary in concentration within the mixture (solution). These mixtures are subsequently screened for a particular property. Even though Salomaa is not dealing with formation of solutions or mixtures of solid luminescent materials it is art that is relevant to the question of why would one of skill in the art replace a different type of liquid dispenser with a positive displacement type of dispenser. In this case Salomaa shows that positive displacement micropipetting devices can form mixtures of varying composition of at least one component for use in screening a property of the composition. Furthermore the patent teaches using either a diluent or a reagent in making the various mixtures which shows that the device can be used to form a mixture of at least two components in which the relative concentration of the two components changes in the series of mixtures. In Salomaa is a device that is performing a substantially similar function (dispensing liquids to form a varying concentration of at least one component in a series of mixtures) for a similar purpose -- screening a property of the resultant mixture. This in combination with Schultz provides both the expectation and knowledge that the Salomaa device can be substituted for the inkjet device as a dispenser for forming mixtures. Jorgensen and Stahli show similar teachings and add that a positive displacement dispenser can dispense reproducible volumes independent of viscosity or solvent effects. From this it is clear that not all dispensers are capable of dispensing reproducible volumes as viscosity or solvent change. Thus Jorgensen and Stahli show that one of skill in the art would have recognized that not all dispensers are free of viscosity or effects on the dispensed volume, but an advantage of the positive displacement type of dispenser is the independence of the dispensed volume on the viscosity of the solution of the solvent used in the solution. this adds a further reason and clear motivation for replacing the inkjet type of dispenser of Xiang with the positive displacement type of dispenser as taught by Jorgensen or Stahli.

Relative to the viscosity in the claims, the cited Louderback and Tezuka references were not applied because they simply place the claimed "greater than about 1 centipoise" language in perspective to the inherent properties of blood and water. Since according to the Louderback reference water has a viscosity of 1.002 centipoises (0.01002 poises x 100 centipoises/poise), the instant claims include water as a liquid having the claimed viscosity. Thus Salomaa teaches a dispenser that clearly does not have problems dispensing liquids of greater than 1 centipoise and any arguments to that effect are clearly not relevent to the claims since water is a liquid having the required viscosity. Thus there is no need to incorporate the Louderback or Tezuka references into the rejections of record because the viscosity of the aqueous materials in the references all inherently exceed the required mininum viscosity!

Relative to the particle suspension of claim 24, Schultz clearly teaches dispensing particle suspensions as part of the mixture to form the variaous materials, therefore determination of proper particle size would have been an optimization issue or an issue clearly covered by the particle suspensions (whole blood) dispensed in the other applied references.

For these reasons the final rejection is proper and applicant's arguments are unpersuasive. Since the final was proper, an interview to discuss the issues outlined on page 16 of the May 30, 2003 after final response is not necessary and applicant's request for an interview is denied.